

Claims

1. A device for dosing and forming pods (1) containing a product for infusion; the pods (1) being of the type comprising a piece of filter material containing a dose of the product for infusion, the device being characterised in that it comprises at least the following:
  - 5 - a station (2) for feeding the product into at least one forming impression (3) defining a single dose of the product and made in means (4) for forming a respective compressed disk (5) of the infusion product and releasing the compressed disk (5) from the impression (3) in the filter material to form the pod (1).
  - 10 2. The device according to claim 1, characterised in that the impression (3) is moved by the means (4) along a circular path (P).
  - 15 3. The device according to claim 1, characterised in that under the means (4) for forming the disk (5) there is a station (6) for supporting and feeding the filter material.
  - 20 4. The device according to claim 1, characterised in that the product feed station (2) comprises a fixed hopper (7) mounted to face a first revolving drum (8), forming part of the forming means (4); the hopper (7) presenting an arc-shaped discharge portion to peripherally follow a passing surface of the first drum (8) in such manner as to permit feeding of the product in a predetermined area.
  - 25 5. The device according to claim 1, characterised in that the means (4) for forming the disk (5) comprise a revolving drum (8) equipped with a plurality of pistons (9) arranged radially on the surface of the drum (8) and having a hollow head (10) forming an impression (3) designed to receive a dose of the product fed by the feed station (2); radial drive means (11) being provided between each piston (9) and the drum (8) to act upon the pistons (9) in such manner as to impart a plurality of synchronised movements to the pistons (9) according to their angular positions on a circular path (P) and so as to receive the product, compress

the product to form the disk (5), detach and deposit the disk (5) onto the filter material.

6. The device according to claim 5, characterised in that the radial drive means comprise cam means (11) consisting of at least one guide cam profile (12) stably associated with the interior of the drum (8) and engaged by a cam follower roller (13) for each piston (9); each cam follower roller (13) being attached to the end of a respective connecting rod (14) whose other end is associated with a control pin (15) rotatably connected to the 10 inside end of the cylinder (16) of the piston (9) so as to drive the piston (9) radially in both directions according to the angular position of the piston (9) on the circular path (P).

7. The device according to claims 5 and 6, characterised in that the cam means (11) cause each single piston (9) to be positioned 15 according to movements referenced to a relative position or angular section of the circular path (P) and corresponding to:

- a first arc-shaped path section (P4) where the piston (9) is radially retracted towards the drum (8) in such a way that the piston (9) moves into a product dosing configuration when it reaches a point (P4A) corresponding to its bottom dead centre;
- a second arc-shaped path section (P1) for dosing where the piston (9) is initially at the bottom dead centre (P4A), in such manner as to collect as much product as possible in the head (10), and moves in a radial direction towards the outside of the drum (8) until it reaches the endpoint (P3) of the feed station (2) where there is a wall (7a) for levelling off the product accommodated in the impression (3);
- a third arc-shaped path section (P2) for tamping the disc (5), where the piston (9) moves radially towards the outside of the drum (8) and against a stop wall (20) corresponding to its top dead centre (P2M) where it remains until it starts on
- a fourth arc-shaped path section (P5) where the piston (9) moves back up in order to facilitate detachment of the disc (5) from the impression (3) just before reaching the point (P0) where the disc (5) is released.

8. The device according to claim 6, characterised in that the cam profile (12) is divided into two arc-shaped sectors (12a,

12b), a fixed lower section (12a) and an adjustable upper section (12b) corresponding to a part of the path (P) of the pistons (9) comprising at least one area where the product is filled into the pistons (9).

5. The device according to claim 5, characterised in that the drum (8) is equipped with rotational drive means (17) acting on each piston (9) and designed to continuously revolve each piston (9) about its axis; the rotational drive means (17) comprising a fixed ring gear (18) mounted inside the drum (8) and meshed with  
10 corresponding gear wheels (19) keyed to the respective cylinder (16) of each piston (9) so that the pistons (9) revolve continuously as they move round the circular path (P), thus stamping the disk (5) and preventing it from sticking inside the head (10) of the piston (9) while enabling the disk (5) to be  
15 detached completely when it is deposited on the filter material.

10. The device according to claim 5, characterised in that there are arc-shaped walls (20, 21) round the outer surface of the drum (4) designed to permit the pistons (9) to be pushed against the impressions (3) in a part of the circular path (P) and in such a  
20 way as to co-operate with the pistons (9) at least when the disk (5) is formed and compressed.

11. The device according to claim 3, characterised in that the feed station (6) comprises a first belt (22), trained around a pair of sheaves (23, 24) and having a perforated or porous  
25 surface; means (25) being provided for creating a vacuum at least at the working section of the first belt (22) which feeds the filter material and on which the product disk (5) is deposited.